IN THE CLAIMS:

A. Please cancel claims 30-35 without prejudice or disclaimer.

B. Please amend claims 1-5, 7-11, 13, 21, 24, 25, and 27 as follows:

Amended Claims With Mark-ups to Show Changes Made

1. (Amended) An apparatus comprising:

one or more optical fibers or other waveguides for receiving light; and

[a plurality of] one or more modeled tap structures formed in the one or more optical fibers or waveguides configured so that, when the light travels through said one or more optical fibers or waveguides, a [predetermined] desired illumination pattern is created by scattering, diffraction, reflection and/or refraction of portions of the light through the one or more modeled tap structures formed by using pattern parameters determined by modeling the desired illumination pattern.

2. (Amended) The apparatus according to claim 1, wherein the [predetermined] illumination pattern is generally spherical in shape.

3. (Amended) The apparatus according to claim 1, wherein the [predetermined] illumination pattern is generally in the shape of an arc.

4. (Amended) The apparatus according to claim 1, wherein the [predetermined] illumination pattern is generally cylindrical in shape.

5. (Amended) The apparatus according to claim 1, wherein the [predetermined] illumination pattern is generally conical in shape.

7. (Amended) The apparatus according to claim 1, wherein the [plurality of] one or more modeled tap structures have an asymmetrical geometry.

8. (Amended) The apparatus according to claim 1, wherein the [plurality of] one or more modeled tap structures extend radially or completely around the one or more optical fibers or waveguides.

9. (Amended) The apparatus according to claim 1, wherein the [plurality of] one or more modeled tap structures each comprise a continuous circular tap structure.

10. (Amended) The apparatus according to claim 1, wherein the [plurality of] one or more modeled tap structures are arranged in an array extending along a length of the one or more optical fibers or waveguides.

11. (Amended) The apparatus according to claim 1, wherein the [plurality of] one or more modeled tap structures each have a length extending in a longitudinal direction of the respective optical fiber or waveguide larger than a width extending in a radial direction of the respective optical fiber or waveguide.

13. (Amended) The apparatus according to claim 12, wherein the one or more light sources comprise one or more [source comprises a plurality of] selectively controllable light sources.

21. (Amended) The apparatus according to claim 20, wherein the one or more light sources [source] comprise one or more semiconductor laser diodes.

24. (Amended) An apparatus comprising:

one or more optical fibers or [other] waveguides for receiving light; and

a continuous modeled tap structure formed in the one or more optical fibers or waveguides configured so that, when the light travels through said one or more optical fibers or waveguides, a [predetermined] desired illumination pattern is created by scattering, diffraction, reflection and/or refraction of portions of the light through the [one or more] continuous tap [structures] structure formed by using pattern parameters determined by modeling the desired illumination pattern.

25. (Amended) An apparatus comprising:

one or more optical fibers or waveguides for receiving light; and

one or more modeled tap structures formed in the one or more optical fibers or waveguides configured so that, when the light travels through said one or more optical fibers or waveguides, an amount of the light output through the one or more modeled tap structures is optimized, wherein the one or more modeled tap structures are formed by using pattern parameters determined by modeling an illumination pattern configured for optimized light output.

27. (Amended) An apparatus comprising:

one or more photon channeling structures for receiving photons; and

[a plurality of] one or more modeled tap structures formed in the one or more photon channeling structures configured so that, when the photons travels through said photon channeling structures, a [predetermined] desired pattern is created by scattering, diffraction, reflection and/or refraction of portions of the [photons] photon flux through the one or more modeled tap structures formed by using pattern parameters determined by modeling the desired pattern.

Clean Set of Amended Claims

1. (Amended) An apparatus comprising:

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one or more optical fibers or other waveguides for receiving light; and

one or more modeled tap structures formed in the one or more optical fibers or waveguides configured so that, when the light travels through said one or more optical fibers or waveguides, a desired illumination pattern is created by scattering, diffraction, reflection and/or refraction of portions of the light through the one or more modeled tap structures formed by using pattern parameters determined by modeling the desired illumination pattern.

2. (Amended) The apparatus according to claim 1, wherein the illumination pattern is generally spherical in shape.

3. (Amended) The apparatus according to claim 1, wherein the illumination pattern is generally in the shape of an arc.

4. (Amended) The apparatus according to claim 1, wherein the illumination pattern is generally cylindrical in shape.

5. (Amended) The apparatus according to claim 1, wherein the illumination pattern is generally conical in shape.

7. (Amended) The apparatus according to claim 1, wherein the one or more modeled tap structures have an asymmetrical geometry.

8. (Amended) The apparatus according to claim 1, wherein the one or more modeled tap structures extend radially or completely around the one or more optical fibers or waveguides.

9. (Amended) The apparatus according to claim 1, wherein the one or more modeled tap structures each comprise a continuous circular tap structure.

10. (Amended) The apparatus according to claim 1, wherein the one or more modeled tap structures are arranged in an array extending along a length of the one or more optical fibers or waveguides.

11. (Amended) The apparatus according to claim 1, wherein the one or more modeled tap structures each have a length extending in a longitudinal direction of the respective optical fiber or waveguide larger than a width extending in a radial direction of the respective optical fiber or waveguide.

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13. (Amended) The apparatus according to claim 12, wherein the one or more light sources comprise one or more selectively controllable light sources.

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21. (Amended) The apparatus according to claim 20, wherein the one or more light sources comprise one or more semiconductor laser diodes.

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24. (Amended) An apparatus comprising:

one or more optical fibers or waveguides for receiving light; and

a continuous modeled tap structure formed in the one or more optical fibers or waveguides configured so that, when the light travels through said one or more optical fibers or waveguides, a desired illumination pattern is created by scattering, diffraction, reflection and/or refraction of portions of the light through the continuous tap structure formed by using pattern parameters determined by modeling the desired illumination pattern.

25. (Amended) An apparatus comprising:

one or more optical fibers or waveguides for receiving light; and

one or more modeled tap structures formed in the one or more optical fibers or waveguides configured so that, when the light travels through said one or more optical fibers or waveguides, an amount of the light output through the one or more modeled tap structures is optimized, wherein the one or more modeled tap structures are formed by using pattern

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parameters determined by modeling an illumination pattern configured for optimized light output.

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27. (Amended) An apparatus comprising:

one or more photon channeling structures for receiving photons; and

one or more modeled tap structures formed in the one or more photon channeling structures configured so that, when the photons travels through said photon channeling structures, a desired pattern is created by scattering, diffraction, reflection and/or refraction of portions of the photons through the one or more modeled tap structures formed by using pattern parameters determined by modeling the desired pattern.

C. Please add new claims 36-45 as follows:

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36. (New) The apparatus according to claim 1, wherein the one or more tap structures comprise a plurality of tap structures arranged in a desired pattern.

37. (New) The apparatus according to claim 25, wherein the one or more tap structures comprise a plurality of tap structures arranged in a desired pattern.

38. (New) The apparatus according to claim 1, wherein the tap structures are modeled using an iterative process.

39. (New) The apparatus according to claim 1, wherein the tap structures are modeled using a theoretical modeling process.

40. (New) The apparatus according to claim 24, wherein the tap structure is modeled using an iterative process.

41. (New) The apparatus according to claim 24, wherein the tap structure is modeled using a theoretical modeling process.

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42. (New) The apparatus according to claim 25, wherein the tap structures are modeled using an iterative process.

43. (New) The apparatus according to claim 25, wherein the tap structures are modeled using a theoretical modeling process.

44. (New) The apparatus according to claim 27, wherein the tap structures are modeled using an iterative process.

45. (New) The apparatus according to claim 27, wherein the tap structures are modeled using a theoretical modeling process.